2nd. Explosions arising from deficiency of water may be prevented by the fusible alloys, bursting plates, good feed pumps, water-gauges, alarms, and other marks of indication; but above all, the experienced eye and careful attention of the engineer is the greatest security.

3rd. Explosions from collapse are generally produced from imperfect construction, which can only be remedied by adopting the cylindrical form of boiler, and a valve to prevent the formation of vacuum in the boiler.

4th. Explosions from defective construction admit of only one simple remedy, and that is, the adoption of those forms which embody the maximum powers of resistance to internal pressure, and such as we have already recommended for general use.

Lastly. Good and efficient management, a respectable and considerate engineer, and the introduction of such improvements, precautions, and securities as we have been able to recommend, will not only insure confidence, but create a better system of management in all the requirements necessary to be observed for the prevention of steam-boiler explosions."

A Treatise on the Screw Propeller. By JOHN BOURNE, C.E. Part I. London: Longman, Brown, Green, and Longmans.

THIS is the first of twelve similar issues, intended to complete a treatise on this curious and interesting subject. The present part is illustrated by various wood engravings, and also by an engraving on steel of the engines of her Majesty's steam yacht *Fairy*, and of the screw steamer *Faon*—a fast vessel engaged in the French mail service. It also contains the first portion of an appendix, with tables of the navy screw steamers, prepared under direction of the Admiralty; and the whole work, we may add, is published under her Majesty's patronage.

In the outset is an interesting historical account of kindred inventions, and incidentally of chimneys with smoke-jacks, windmills, &c. From this preliminary account we find—we cannot say we are surprised to find—that in China the screw propeller is said to have been known for ages! So is it with most of our cleverest and most *modern* inventions: if there be anything of sterling merit in them, be sure that the Chinese, or some other long-decayed inheritors of antique enlightenment, know all about it. We say this in no mere satirical vein, as most of our readers know: we are seriously assured, by innumerable instances, that "there is nothing new under the sun."

A Manual of the Differential Calculus, with Simple Examples. By HOMERSHAM COX, B.A., Jesus College, Cambridge. Weale, Holborn. 1851.

THIS little manual is designed to supply a want felt among mathematical students—that of a simple introduction to complete treatises on the differential calculus. The beginner requires every possible aid, and we trust the most limited mathematical capacities will derive, as we think they may, much solid advantage from the guidance here given, although the author has very properly made it a point not to merely conceal or shirk difficulties fairly and legitimately in the way, but to reduce them, as far as possible, within the range of the beginner's capabilities. Success in such a course depends on the student as much as on the teacher, so that experience alone can decide the precise amount of the latter's success in each particular instance.

CREMORNE GARDENS.—There is not a prettier place of its sort than Cremorne, and the manner in which it is conducted is very creditable to Mr. Simpson. A ballet in the theatre, music in the grounds, the Boojesmen in their tent, and Franconi's very clever troupe of equestrians in the circus, make up a heap of amusements from which all may pick out something to please them; and then, as a wind-up, they may cross the wooden bridge, which separates the gardens from the borders of the Thames, and see in quite a new light and under very pretty colours how Gibraltar was taken, and that, too, without any danger from red-hot shot, or a great dip into the locker.

Miscellanea.

CALCULATING MACHINES.—Without in the least wishing to undervalue the calculating machine mentioned in your number of 9th inst., I must beg leave to say that, if Mr. Babbage had been satisfied to do "sums in addition, subtraction, multiplication, and division" with rapidity and precision, and to perform "the operation of extracting the square root and the most complicated sums in fractions," he might have made such a machine some years ago; and it would also have possessed the most "singular power" of detecting the wrong statement of a question, in the manner described in the aforesaid number, by the "ringing of a small bell." At first Mr. Babbage's object was to construct a machine that would calculate *and print* tables of logarithms, &c. &c. in such a manner as to render errors impossible; but circumstances, over which he had no control, prevented the completion of this machine, and his views became gradually enlarged until his endeavours were directed to the contrivance of a machine that would enable the user to solve abstruse mathematical problems with perfect accuracy, by merely inserting a few perforated cards and turning a winch; and there is every reason to believe he has completely succeeded. But such a machine is unavoidably complicated, and cannot be appreciated either as to its ingenuity or importance except by men of talent and ability, nor by them without some labour. And as the machine has not been actually made, its capabilities can only be known to the comparatively few persons who take the necessary pains to understand it, and probably many disbelieve its possibility, because it cannot be manifested to their senses. Unless a calculating machine can make common calculations with much greater celerity than they are made with the pen, or perform such operations as are so complicated and laborious as to defy human perseverance and endurance to perform them correctly, it can only be regarded as an ingenious but useless toy.—G.

CAUTION TO WORKMEN.—FIRE.—Two boys were left on Tuesday last, while the men were at dinner, in charge of some houses now building by Mr. Trower, on the property of Robert Gunter, Esq., Boltons, West Brompton: one of them lighted a fire to melt some glue: the wind scattered the shavings and in an incredibly short time two of the houses were wholly destroyed, together with a large stock of dry deals deposited in the basement of one of them. To make matters worse he had accidently allowed the time for renewing the assurance which had been effected on them in the "Phœnix" to run out, and was about to go to the office to pay the premium on the very day the accident happened. It is to be hoped that the office will take the matter into their consideration and avert what may otherwise be the ruin of an honest hard-working fellow. If they do they shall, at all events, have the benefit of our circulation to make known their liberality.

NORTHFLEET CHURCH-YARD AND INN.—Mr. Editor,—When you next go to Gravesend, and I know you rather like such trips, take a peep at an astonishing sepulchral memorial in Northfleet Church-yard, on the south side. It may be thus described:—First course—White Ipswich bricks of the best tallow hue. Second course—Scotch granite. Third course—Caen stone. A friend who accompanied me, said "he thought the builder had taken a page from a book upon architecture which contained a sketch of *all the Orders*, and had built them up here in one structure." It may be so! There are urns and flames—medallions with framed and glazed (?) views of "Huggen's College," and of the perpetrator's arms; the whole surmounted with a Niobical figure, weeping at the woful expenditure of cash upon the disgusting pyramidical object beneath her. One hundred pounds were paid to the incumbent for the privilege of putting this thing into the church-yard. From two points this thing utterly obstructs—nay, it hides a view of the church!!! This alone testifies to the magnitude of this mass of bricks and mortar, masonry, and glass. Northfleet boasts of containing an archæological house of call, yclept the Leather Bottle. A regular ancient leathern bottle swings to and fro, for its sign. No modern "house of call" built up of cement and lath and plaster is this. No—it is the regular "old original" place. In the rooms, where Thorpe and the antiquaries of the past have assembled, I have hobbed and nobbed with Roach Smith, Curreton, and others, celebrated in the archæological walk of the present day. In this house was also held, for many a long year, the meetings of the Natural History Society of the county of Kent, of which Pocock, the historian of Gravesend, and of the Tufton family, was the chairman. Poor Pocock lies buried in the north-eastern corner of Wilmington churchyard—no monumental memorial marks the spot where he lies. Northfleet has seen some queer changes since the time when Domesday Book was compiled. The fisheries (for salmon) no longer exist, but, in their stead, she has a railway station, a steamboat pier, a public garden, a magnificent charity—called Huggen's College—the enormous cement works of Robins and Aspdin, the foundry of Horlocks, and, though I enumerate it last, not the least, Pitcher's ship-building yard—the yard where mighty monarchs from the north and south and east and west get their ocean leviathans built.—D.

SOCIETY OF WORKING BOOKBINDERS OF LONDON.—We have before now mentioned the exhibitions by this society of specimens of bookbinding. We are asked to say, and do so willingly, that a committee is appointed to carry out an exhibition for the current year, which is to take place on the 2nd of September, and they earnestly solicit persons who may feel disposed to aid them, to forward to the "Plough Tavern," Museum-street, "Rubs-off or other specimens or curiosities of the art, which would tend to make this their exhibition of 1851 surpass all its predecessors in richness and variety."

ARCHÆOLOGICAL.—Two sculptures in niches have been discovered at Holy Trinity Church, Colchester, in stripping the mortar off the outer walls.——Four stone coffins laid in form of a cross have been found in a tower at Great Yarmouth, where tradition had narrated that four monks were poisoned by an abbess for boasting of undue familiarities with her. The tradition led to the search.——The members of the Scarborough Archæological Society on 8th inst. spent the day, on invitation, at Lord Londesborough's seat, Grimston-park.——The monthly meeting of the Bedfordshire Archæological Society was held on Tuesday week, Dr. Parris Dick in the chair. The subject of the proceedings related principally to the meeting of the Beds and Bucks Archæological Societies at Leighton Buzzard. ——A committee meeting of the Architectural and Archæological Society of the Archdeaconry of Northampton was held on Monday in last week, the Rev. Chancellor Wales in the chair. Mr. James stated that he had received a second letter from the Dean of Ely, respecting the proposal for making the restoration of the round part of St. Sepulchre's Church a memorial to the late Marquess of Northampton, and recommending the immediate bringing forward of the proposition. The opinion of the committee having been requested as to the removal of the carved screen-work in Wellingborough Church, it was unanimously resolved that the secretary urge in the strongest manner the preservation of so valuable a specimen of carved woodwork. Some other business was transacted before the meeting separated.

WESTMINSTER IMPROVEMENT COMMISSION.—A circular has been addressed to the inhabitants of Westminster, by Sir Edwin Pearson, the chairman of the Westminster Improvement Commission, inviting their co-operation in a proposal to erect a statue of her Majesty in that portion of the vacant space between the Abbey and Victoria-street, the new thoroughfare recently opened, connecting in a direct line the region of Belgravia with the districts surrounding the Houses of Parliament. It is proposed that the statue shall be of fine bronze, seated, of the stature of seven feet.

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